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BULLETIN No. 12.

U. S. DEPARTMENT OF AGRICULTURE.

OFFICE OF ROAD INQUIRY.

WIDE TIRES.

LAWS OF CERTAIN STATES RELATING TO THEIR USE, AND OTHER PERTINENT INFORMATION.

COMPILED BY

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Special Agent in Charge of Road Inquiry.

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LETTER OF TRANSMITTAL.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF ROAD INQUIRY,
Washington, D. C., February 7, 1895.

SIR: I have the honor to submit herewith certain information concerning the use of wide tires on wagon wheels. It is of great importance in the maintenance of the public highways that the vehicles used on them shall have tires of greater width than are now in general use. I would therefore recommend the publication of this information as Bulletin No. 12 of the Office of Road Inquiry.

Very respectfully,

ROY STONE,
Special Agent and Engineer.

Hon. J. STERLING MORTON,
Secretary of Agriculture.

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WIDE TIRES.

CALIFORNIA.

[Chapter 206, March 16, 1889.]

The board of supervisors in their respective counties have jurisdiction and power under such limitations and restrictions as are prescribed by law.

ARTICLE 39. By proper ordinances to enforce within the limits of their counties all such regulations concerning the size of wagons and vehicles of all kinds to be used on the roads or highways, and the width of tires on same, as not to conflict with general laws.

MICHIGAN.

An act to regulate the width of wagon tires to be used on lumber wagons.

SECTION 1. The people of the State of Michigan enact that all persons who shall have used only lumber wagons on the public highways of this State, with rims not less than three and one-half inches in width, for hauling loads exceeding eight hundred pounds in weight, for the year ending on the first day of June in the year of our Lord eighteen hundred and eighty-four, and each succeeding year thereafter, shall receive a rebate of one-fourth their assessed highway taxes for the year eighteen hundred and eighty-four, and in like manner for each succeeding year thereafter.

SEC. 2. Any person complying with the provisions of section 1 of this act, who shall make and subscribe to an affidavit that he or she has for the year of June the first, eighteen hundred and eighty-four, or on the first day of June on any succeeding year thereafter, have used only such wagons, with rims not less than three and a half inches in width, for hauling loads exceeding eight hundred pounds in weight, on the public highways in this State, shall be credited by the overseer of highways of the road district in which such person resides with one-fourth of the road tax assessed and levied on the property of such person in the road district in which such person resides. And any overseer is hereby authorized to administer such oath.

Approved, June 8, 1883.

This act was amended May 12, 1887, by adding to section 1: "Providing, however, such rebate shall not exceed in any one year three days' road tax for any person."

NEW YORK.

[Statutes of 1893, chapter 468.]

Every person who, during the year ending June the first, eighteen hundred and ninety-three, and each succeeding year thereafter, uses on public highways of this State only wagons or vehicles upon which two or more horses are used, with wheels, the tires of which shall not be less than three inches in width, shall receive a rebate of one-half of his assessed highway tax for each such year, not exceeding, however, in

any one year the sum of four dollars, or four days' labor. The right to such rebate shall not be affected by the use upon the public highways of buggies, carriages, or platform spring wagons carrying a weight not exceeding one thousand pounds. Upon making an affidavit showing that he has complied with the provisions of this section during any such year, the person shall be credited by the overseer of highways for the road district in which he resides, or any road district where he is assessed, with such rebate. Such affidavit may be taken before any overseer of highways, who is hereby authorized to administer such oath.

The following act became a law on May 10, 1894:

An act to amend the county law relating to powers of boards of supervisors with reference to tires on wagons.

The people of the State of New York, represented in senate and assembly, do enact as follows:

SECTION 1. Chapter 686 of laws of 1892, entitled "An act in relation to counties constituting chapter 18 of the general laws," is hereby amended by adding thereto a new article 79, to read as follows:

"ARTICLE 79. *Powers in certain counties.*—In counties wherein the aggregate amount of money expended by the county and towns within the county for the improvement of public roads by macadamizing or paving exceeds the sum of five hundred thousand dollars, the board of supervisors may enact local and private laws regulating the width of tires on wagons built to carry a weight of two thousand five hundred pounds or upward, and may provide penalties for the violation thereof: *Provided, however,* That such local laws shall not apply to pleasure vehicles or to wagons coming from adjacent cities or counties, nor to any city within this county."

The following senate bill (No. 37) has been introduced by Mr. Kilburn in the New York senate:

An act to improve the public highways of the State by regulating the width of tires upon wagons made for carrying heavy loads.

The people of the State of New York, represented in senate and assembly, do enact as follows:

SECTION 1. No wagon made after the first day of July in the year eighteen hundred and ninety-five, for the purpose of carrying freight and merchandise and drawn by two or more horses and having a tire less than four inches wide shall be used by any person upon any of the public highways of this State outside of paved or macadamized streets of cities and villages.

SEC. 2. The proper municipal authorities of cities and villages having within their limits macadamized streets, are hereby authorized and empowered to regulate the width of the tires upon such wagons used upon such macadamized streets.

SEC. 3. Any person who violates section one of this act or who violates any ordinance made in pursuance of section two of this act shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than five dollars nor more than twenty-five dollars for each offense.

SEC. 4. This act shall take effect on the first day of July in the year eighteen hundred and ninety-five.

The supervisors of Queens County, N. Y., in accordance with the act passed by the State legislature, passed the following ordinance:

All owners of vegetable wagons which will weigh, when loaded, 2,500 pounds or more, shall use tires not less than 3 inches in width on the wheels.

The penalty for violation of this law is fixed at $10 fine for the first offense, and the second violation is punishable by imprisonment.

This ordinance took effect on October 1, 1894. On that day there were many arrests and as many fines imposed. The ordinance left nothing to the judgment of the justice, but made the imposition of the fine obligatory in each case tried.

It has since been amended so that justices of the peace and police justices may first hear and determine all cases of violation.

OHIO.

An act to amend section 4904, as amended May 4, 1891, of the Revised Statutes, to protect improved roads from heavy burdens.

SECTION 1. *Be it enacted by the general assembly of the State of Ohio,* That section 4904 of the Revised Statutes of Ohio, amended May the fourth, eighteen hundred and ninety-one, be so amended as to read as follows:

"SECTION 4904. It shall be unlawful for any person or persons, firm or corporations, in any county, having free or toll, macadamized, gravel, or stone roads, to transport over such roads in any vehicle having a tire of less than three inches in width a burden of more than two thousand pounds. The county commissioners of every county shall constitute a board of directors for their respective counties, with power to prescribe the increased weight and quantity greater than two thousand pounds that may be carried in vehicles having a width of tire three inches and upwards, and cause such regulations to be recorded in their journal. All persons violating this or any regulation duly prescribed by the aforesaid boards of county commissioners, made in pursuance thereof, shall be guilty of a misdemeanor, and on conviction shall be fined not less than five dollars nor more than fifty dollars, and shall be imprisoned until the fine and costs of prosecution are paid, or said person so convicted duly discharged according to law. The board of trustees, or any one of them, or any pike superintendent or commissioner, within their respective jurisdiction, or any owner or president of any turnpike company, owning or operating a turnpike road, within any county, the county commissioners within their respective counties, shall cause to be prosecuted all persons violating this act or violating any regulation prescribed by the board of county commissioners, made in pursuance of the authority herein conferred.

"The county commissioners within their respective counties are hereby empowered to appoint some suitable person or persons to enforce the requirements of this act and such regulations as made in pursuance of the authority herein conferred; and the person or persons so appointed shall receive, upon conviction for an offense by them prosecuted under this act, such portion of the fine or penalty as the commissioners may deem just and proper; and on complaint of any freeholder, and if in the opinion of the board, owner, or president of such turnpike company the complaint is well-founded, the said board, owner, or president of any turnpike company may also enjoin any person or persons who are engaged in the business of transporting heavy loads over such roads in violation of the requirements prescribed under it, and the court in any such action may render judgment against the defendant or defendants for any damage done."

SEC. 2. That section 4904, as amended May fourth, eighteen hundred and ninety-one, is hereby repealed.

SEC. 3. This act shall take effect and be in force from and after its passage.

Approved, April 20, 1894.

An act to amend section 1 of an act passed April 15, 1892, entitled "An act to regulate burdens upon county roads in counties having at the Federal Census of 1880 a population of not more than 33,515 and not less than 33,510."

SCIOTO COUNTY.

SECTION 1. *Be it enacted by the general assembly of the State of Ohio,* That section 1 of the above-mentioned act be amended to read as follows:

"SECTION 1. That in any county in this State having at the Federal Census of 1880

a population of not more than 33,515 and not less than 33,510, the county commissioners shall have power to enforce the following regulations as to the burdens hauled over all free turnpikes or improved county roads, viz: All vehicles carrying a burden of over two thousand five hundred pounds and not over three thousand five hundred pounds shall have a tire of not less than three inches in width; all vehicles carrying a burden of over three thousand five hundred pounds and not over four thousand pounds shall have a tire of not less than three and one-half inches in width; all vehicles carrying a burden of over four thousand pounds and not over six thousand pounds shall have a tire of not less than four inches in width; all vehicles carrying a burden of over six thousand pounds and not over eight thousand pounds shall have a tire of not less than five inches in width; all vehicles carrying a burden of eight thousand pounds and over shall have a tire of not less than six inches in width: *Provided, however,* That the owner of real estate, his tenants or agents, may use any character of vehicle, without reference to the burden carried or width of tire, in hauling his products from one portion of his premises to another portion thereof along said turnpikes or roads."

Passed March 6, 1894.

Extract from an act entitled "An act to create the township of Pitt, in the county of Wyandotte, State of Ohio, a separate road district:"

SECTION 36. It shall be unlawful for any person or persons, firm or corporation, either by themselves or by their agent, to transport over the graveled or macadam roads of Pitt Township, Wyandotte County, Ohio, between the fifteenth day of November of any year and the fifteenth day of May of the following year, a burden of more than three thousand six hundred pounds in any vehicle having a tire less than five inches in width; or a burden of more than two thousand five hundred pounds on any vehicle having a tire less than four inches in width; or a burden of more than two thousand pounds in a vehicle having a tire of less than three inches in width; or a burden of more than one thousand five hundred pounds in a vehicle having a tire of less than one and seven-eighths inches in width: *Provided, however,* That when the roads are sufficiently dry or frozen to bear up without injury to the pike or improved roads burdens of greater weight than those above specified, then and in that case, the herein restrictions shall not be in force.

Passed March 29, 1894.

INDIANA.

Indiana has a law against hauling on a wet gravel road a load of over 2,000 pounds on a narrow-tired wagon or over 2,500 pounds on a broad-tired wagon.

KENTUCKY.

Kentucky makes a distinction in favor of broad-tired wagons in fixing toll rates. The rate for a loaded narrow-tired wagon drawn by four animals is 40 cents; for a wagon with 4-inch tread, under same conditions, 35 cents. Likewise, narrow-tired wagons with five animals, 60 cents; wagons with 4-inch tread, 50 cents; narrow-tired wagons with six animals, 75 cents; wagons with 4-inch tread, 60 cents.

VERMONT.

R. L., SEC. 3135. Freight wagons, carts, or carriages carrying more than three tons in weight and less than four tons shall have the rims or felloes of their wheels at least three inches wide, and if carrying more than four tons of freight the rims and felloes of the wheels shall be at least four inches wide. But the selectmen may give a person permission to use wagons, carts, or carriages in their respective towns

with the rims of less width than is provided in this section when, in their opinion, the highways would not be greatly injured thereby. The provisions of this section shall not extend to stage coaches or pleasure carriages, or to carts or wagons owned by inhabitants residing in the immediate vicinity of the highway and used for farming purposes exclusively.

R. L. Sec. 3136. If a person violates the provisions of the preceding section he shall be fined ten dollars. Such offender shall be further liable to the town in which the offense is committed for the damages to a public highway by reason of such violation, to be recovered in the name of the town in an action on the case: *Provided,* The action is brought within six months after such offense is committed.

PENNSYLVANIA.

Horace J. Smith, in an article in Good Roads for May, 1892, entitled "Our first artificial road," quotes the following from the Pennsylvania statutes of 1792:

An act for making an artificial wagon road from Philadelphia to the borough of Lancaster, etc.

No wagons nor other carriages with four wheels, the breadth of whose wheels shall not be greater than four inches, shall be drawn along the said road between the first day of December and the first day of May following, with a greater weight thereon than two and one-half tons, nor more than three tons during the rest of the year.

Seven-inch wheels might carry from 3½ to 4 tons; 10-inch wheels, 5 to 5½ tons. No cart or two-wheeled carriage with wheels less than 4 inches in width could carry more than 1¼ to 1½ tons; or with 7-inch wheels, 2½ to 3 tons; with 10-inch wheels, 3½ to 4 tons. The company had the right to compel the drivers to weigh their wagons on scales conveniently situated along the road.

MASSACHUSETTS.

An act to encourage the use of wide tires on vehicles. (Introduced into the present legislature.)

Be it enacted by the senate and house of representatives in general court assembled, and by the authority of the same, as follows:

On and after the first day of July, eighteen hundred and ninety-five, all vehicles owned and used within this Commonwealth shall be exempt from taxation: *Provided,* They are furnished with tires having the width proportioned to the weight of the wagon according to the following schedule:

Wagons weighing not less than one thousand pounds nor more than one thousand five hundred pounds must, in order to be exempted from taxation, have tires not less than three inches in width; one thousand five hundred to two thousand pounds, three and one-half inch tires; two thousand to two thousand five hundred pounds, four-inch tires; two thousand five hundred to three thousand pounds, four and one-half inch tires; three thousand pounds and over, five-inch tires.

This act is understood not to include wagons weighing less than one thousand pounds.

EXPERIMENTS WITH WIDE TIRES.

EXPERIMENT IN NEW YORK.

From the limestone quarry at Split Rock to the works of the reducing company in Geddes, Onondaga County, N. Y., is about 4½ miles. Three or four years ago the work of improving this 4½ miles of road

was accomplished. Rough quarry refuse, and for part of the distance field stones, were used, all hand-broken to 2 and 3 inch sizes. This was covered with fine, unsifted quarry chips, and a crown was given to the roadway with an elevation of about 6 inches in a width of 16 feet. Wagons were built for hauling stone over this road with wide tires and axles of different length, as follows: Front tire, seven eighths of an inch thick and 4 inches wide; distance between centers of front wheels, 4 feet 5 inches. The rear wheels had tires 1 inch thick and 6 inches wide, the distance between center of rear wheels being 5 feet 8 inches. The axles were 2½ inches front and 3 inches rear. The constant use of these wagons during the last three years has produced a smooth, compact, and regular surface between the quarry and the works. The wide tires and varying gauges excited much attention at first, and conflicting opinions regarding their utility were expressed. The result is eminently in their favor, and a general sentiment supports the use of these wagons for heavy loads. Loads of stone, varying from 8,000 to 16,000 pounds, are continuously hauled over this road with no perceptible wear. The cost per ton of hauling stone has been reduced from 80 cents to 60 cents, and a team can easily earn from $3.50 to $4 per day hauling wall stone, making two round trips of 9 miles each, or a total of 18 miles per day.

EXPERIMENT BY THE STUDEBAKER WAGON COMPANY.

On June 1 and 2, 1892, a series of experiments to determine the relative value of broad and narrow wheel tires under different conditions were made under the direction of Mr. J. M. Studebaker, of the Studebaker Wagon Company. In these tests the regulation farm wagons were used with tires of 1½ inches, 3 inches, and 4 inches in width.

A Fairbanks dynamometer was attached to the doubletree and the horses exerted their pull through this instrument in order to move the load. The scale of this instrument was carefully calibrated by comparison with the United Standard Weights and Scales, thereby enhancing the value of the result. Eight tests were completed.

The conclusions arrived at were summed up in this way:

1. On hard roads, block pavements, and other permanent and substantial roads there is no argument, so far as actual draft is concerned, in favor of the wide tire, the effect being rather against the wide tire.

2. In their effect upon hard roads the wide tires have the advantage, and this benefit is not sufficiently appreciated by turnpike and macadam road companies.

3. In soft mud, slush, and under similar circumstances, under which even wide tire cuts in, the advantage is against the wide tire and in favor of the narrow.

4. On sod and soft ground, where the tire does not cut in and the narrow does, the advantage is on the side of the wide tire.

The committee closed their report with, "We advocate wide tire for farms and narrow tire for good roads and pavements."

EXPERIMENTS IN UTAH.

Experiments at the Utah Experiment Station demonstrated that a given load on 1½-inch tire drew about 40 per cent heavier than when on a 3-inch tire, the draft being on a fairly stiff grass sod. On a moist, but hard road, the 1½-inch tire drew 12.7 per cent heavier than the 3-inch.

EXPERIMENT IN OHIO.

The following wide-tire test was made at the Ohio State University: An ordinary wagon with a new 3-inch tire was loaded with two long tons, or 4,480 pounds, and the draft was measured by a dynamometer. On an ordinary earth road, in good condition and hard, the draft was 254 pounds. On a grass field it was 468 pounds. On newly plowed land it was 771 pounds. As the draft power of an ordinary horse of 1,000 pounds is 150 pounds, two horses could draw this load with ease on an ordinary road and a ton and a half on a grass sod, while with a narrow tire half as much, or a single ton, is a full load for a double team Besides this, the broad tires roll and level a road so that the more it is used the better it becomes, while narrow tires cut it into ruts, if at all soft.

EXPERIMENT IN MISSOURI.

A few years ago a number of tests were made by Professor Sanborn, of the Missouri Agricultural College, to find the force required to move loaded wagons having tires of different width. The tests were made with a Baldwin dynamometer. The weight of the load drawn was 3,665 pounds each. The tires of the wheels were 1½ inches and 3 inches, respectively. The tests were made on blue grass sward, partially moist. The draft of the wide tires averaged for level ground 310 pounds. The draft of narrow tires was 439 pounds, or 41.6 per cent more than the wide tire. Assuming the wagon to weigh 1,000 pounds, then on the broad wheel 3,248 pounds of load would be drawn as easily as 2,000 pounds on the narrow tires. Again, the broad wheels in the trial did not injure the turf, while the narrow wheels cut through it. The teamsters about the college farm invariably use broad wheels.

VERMONT REPORT.

The Vermont highway commission makes the following report:

If the present law was so amended as to limit the allowed weight per inch of tire to a definite number of pounds, we believe that this would best accomplish the desired result. To determine what this limit should be we have measured and weighed a large number of wagons representing a great variety of the heavier traffic in the State and have concluded that the maximum weight, including wagon, allowed per inch of tire should be 550 pounds. This is higher than placed by most authorities, but is far less than is the average on city pavements. The following

table shows the load, including the weight of the wagon, that could be carried under such a regulation on varying sizes of tires:

Width of tire in inches.	Allowed load (including weight of wagon).	Width of tire in inches.	Allowed load (including weight of wagon).
	Pounds.		*Pounds.*
2	4,400	3½	7,700
2¼	4,950	3¾	8,250
2½	5,500	4	8,800
2¾	6,050	4½	9,900
3	6,600	5	11,000
3¼	7,150	6	13,200

For vehicles provided with suitable springs the allowed load could properly be increased one-third.

It will be seen, therefore, that wide tires are not only lighter in their draft than narrow ones under nearly all conditions, but they cut up roads very little; in fact, when 6 inches wide they tend to make the road better continually.

OPINIONS OF CORRESPONDENTS.

G. A. Roullier, C. E., Flushing, N. Y., says:

I have followed with interest the operation of the wide-tire law since its first passage in this county and cheerfully place at your disposal such facts as I have.

The original law, calling for a 5-inch tire, had to be amended a number of times before it became acceptable to the people. Not so much on account of any special opposition to the wide tire, but owing purely to practical difficulties.

As the districts traveled over by our farmers on their way to and from market abound in street-railroad tracks, it is a necessity that the wagons should have the same gauge as the tracks; it was found that owing to the peculiar construction of our farm wagons, it was impossible to widen the tires to 5 inches and still maintain the gauge to 4 feet 8½ inches, as the wagon bodies would not allow the wheels to be brought sufficiently close together; in other words, there was not space enough between the wheels and body to admit of such a wide tire. Hence the law was changed to 3 inches.

The reason given above is of course purely local, and is only mentioned to explain the somewhat narrow limit adopted.

Those who have complied with the law are well pleased with the result, and are urgent about others following it.

I gather from conversation with farmers who have to travel over earth roads before reaching the improved ones that they realize the benefit that the wide tire is to them and that their new wagons are likely to be built so as to admit of 4 and 5 inch tires, so that in a comparatively short time I expect to see really wide tires in very nearly general use.

When I purchased the road-repairing outfit for Flushing, I had 5-inch tires placed on the sprinkling carts and on team wagons and 4-inch ones on the one-horse carts. These were the first wide tires seen in this vicinity, and I was subjected to considerable ridicule for a time, but the local contractors were not slow in appreciating the benefits resulting from such tires and of their own volition they adopted 4-inch ones throughout.

The benefits that will result to the roads is unquestioned, but the law having gone into effect only last fall, the time has been too short to allow of a practical demonstration of those benefits.

From experience here I believe that in localities where serious opposition is developed against the "wide-tire law," a gradual application of it will eventually produce the desired result. It is simply a question of convincing the community; once self-educated they will go beyond the limits set by the law.

The Jamaica road is holding out well and is carrying without injury to itself a very large and heavy traffic that has developed since its construction.

As a matter of interest I will state that the construction of that road has thrown the heavy traffic above mentioned on some 4-inch roads, built within the village limits at a time when the improvement of the Jamaica road was not thought of, and that these thin roads have borne the traffic without injury.

I do not wish to be understood as advocating such thin roads for heavy traffic, but I wish to show that under favorable conditions much thinner construction can be used than is generally considered necessary.

Sterling Elliott, editor Good Roads Magazine, says:

Of course everyone is familiar with the Michigan wide-tire law. I have a number of reports from that State, showing that it is giving very good satisfaction except where they still retain, in some parts, the old method of "working out" the tax.

Queens County, N. Y., has a law which calls for tires not less than 3 inches in width for loads of 2,500 pounds and upward, excepting wagons "used by occupants of farms in and about the said farm work."

Youngstown, Ohio, has a wide-tire law which was to have taken effect to-day.

Rock Island, Ill., has a wide-tire law. Also Moline, Ill., and Davenport, Iowa.

Kingston, N. Y., has a wide-tire ordinance and is enforcing it, having recently fined a prominent firm $50 in two instances for violation of the ordinance.

It would seem to me that much of the trouble which they are having in New York State over the wide-tire question is due to their attempt to make the time limit too short.

Rochester, N. Y., has also passed a wide-tire ordinance which is to take effect with the beginning of the new year.

Some agitation has begun in Providence, R. I., but so far as I know no definite action has been taken.

We, of Massachusetts, are trying to get into shape a wide-tire law, and get sufficient backing to carry it through the present legislature. We have not, as yet, drawn up any bill, but a number of propositions are being considered. Personally, I believe, as I have often stated, that the tire question should be regulated by a system of taxation without antagonizing teamsters at first with the idea that they will be compelled to change their wagons whether they wish to or not. I think if we can encourage a tendency in the direction of wide tires, and get those who are quick to learn to adopt them, and thus prove that they are an advantage to the teamster as well as to the road, that after a few years it will be very easy to get legislation which will entirely prohibit the use of narrow tires.

W. C. Nones, president of the Kentucky Wagon Manufacturing Company, says:

The demand for wide-tire wagons seems to be increasing each year. We can not, without too much delay, undertake to state just the number of wagons with tire 3 inches or wider that we have manufactured in each of the past two years, but at a rough estimate, would say that about one-tenth of our entire output would come under the above-mentioned class, somewhere from 1,500 to 2,500 wagons each year.

In our judgment these wide-tire wagons are an improvement upon those with narrow tires in those sections of the country in which wagons are used on dirt roads, and they are also better adapted for miscellaneous hauling in general farm use.

Robert J. Neely, dealer in farm machinery, Paris, Ky., says:

I have sold quite a number of wide-tire wagons in the past three years. The sale of them is steadily on the increase. I believe that a few more years will see them used almost altogether. The turnpike companies in this county offer a reduced rate of toll to all persons, farmers and teamsters, who use wide tires. Aside from this, the farmers like the wide tires better than the narrow strictly for farm use, as the wide do not cut into the ground so readily as the narrow ones. There are probably 40 or 50 wagons with 2½ and 3 inch tires in use now in this county.

Robert Seabury, clerk board of supervisors, Queens County, N. Y., says:

In regard to the Queens County ordinance regulating the width of tire and its enforcement, from what I learn it is receiving more and more as time progresses the favorable opinion of many who were opposed to its adoption. I have heard a number of farmers who objected to it largely on account of the expense attending the change of tires, after having met the expense and used the wagons, express their approbation, and I believe it is now likely to be accepted by the people at large who use the roads as well as those who are taxed to maintain them.

NEWSPAPER NOTES.

M. J. Lewis, the well-known wheelman, and who is an advocate of good roads, said yesterday: "I took a ride over the country roads on Thanksgiving Day and found them hard riding. In my wanderings I came upon wagon tracks made by 6-inch tired wheels. These tires made the country roads where they had traveled almost like a pavement, and I followed the tracks until I found the owner of the wagon, who, in conversation, said he could haul heavy loads with such tires when the roads were in a very bad condition."

On soft roads where these tires have gone over, it makes it an easy matter for cyclists to spin over the country. Mr. Lewis spoke to several farmers regarding these wide wheels, and they are soon to use them.—Youngstown, Ohio, Indicator, December 6, 1894.

A law was made by our legislature about fifteen years ago requiring all lumber wagons to be used in our county to be of wide tire, and this was to be within twelve months' time, but the law fell dead on the statute book, as it was found impracticable to fix wide tires on the old wagons within the time required if at all. But public opinion was educated through the Santa Clara Grange in favor of the wide tire, and it is now a rarity to see an old-time wagon on the road.—I. A. Wilcox, member of Santa Clara Grange, California.

By an experiment recently made in Ohio University, it was found that a double team could draw, upon an ordinary wagon with the 3-inch tires, just twice as heavy a load as upon a wagon with the usual narrow tires, the trial having taken place upon an ordinary earth road. It has been found also that the wide tire helps to keep earth roads in order.—Kelly, Ga., News, July 7, 1894.

Within the past year the Ulster County Road Improvement Association has been formed to remedy the evils resulting from years of bad management. So far the Saugerties road with the exception of 1 mile has been put in good shape. Teamsters who cart building stone have found out this fact and are hauling over this road. These teamsters usually draw from 4 to 6 tons on narrow-tired wagons, making deep ruts and ruining the road. Sometime ago a plea for the enforcement of the wide-tire law was presented to the board of aldermen and referred to the committee on streets, where it died. To-morrow evening a similar request will be made, and it is hoped that it will meet with a better fate than its predecessors. It is useless to repair the roads and allow narrow-tired wagons to again ruin them.—Kingston, N. Y., Leader, August 9, 1894.

It is reasonable to hope that the attention of our next general assembly will be again called to the necessity of more legislation for the improvement and preservation of the country roads akin to the wide-tire bill which died in the last legislature mainly because the farmers were against the Naval Reserve and the shore-town representatives retaliated on the subject of roads, though it would seem that their own nose must have been injured by the spiteful bite. Something of the kind ought to go through this time, and when it comes to choosing candidates it will be a good plan to find out how they feel on this subject.

A country correspondent expresses the idea with good Yankee plainness when he says: "Farmers want common-sense laws founded on common-sense principles. They believe that the best means to preserve the roads in good condition is to have wider tires on wagons drawing heavy loads. All roads on which wagons with wide tires are used you will find smooth and free from ruts, but roads on which narrow tires are used will be rough, with deep ruts, which make them very bad for light vehicles and sometimes impassable."

Petitions have been sent to the legislature from time to time asking that a law be passed requiring wider tires on all wagons heavily laden which are run on public highways.—Willimantic, Conn., Journal, August 31, 1894.

At the last meeting of the road commissioners a resolution was passed recommending the adoption of wide-wheel vehicles for general use in Macon and Bibb counties.

By "wide-wheel vehicles" is meant vehicles with tires 3 inches wide that are now coming into use throughout the country and are being made by all leading wagon manufacturers.—Macon, Ga., Telegraph, October 8, 1894.

The agitation for good roads is having an effect. The Pullman Tribune is pleased to see the number of wide-tired wagons that have come into use this season, and it wisely adds: "Next to macadamizing the roads, which will be impossible for several years, wide tires will do the most good."—Oregonian, Portland, October 26, 1894.

Upon the topic of good roads Mr. A. C. Sisson says: "I suggest as a starter that farmers adopt the 5-inch tire and shorten the forward axle. Wherever this is tried it is found that the tire helps the road, whereas the narrow tire cuts into and spoils the road. This they can do without changing the tire, by going to a blacksmith and having an extra tire put on over the other one."—Baltimore American, November 28, 1894.

It is to be hoped that the first legislation looking to the improvement of the roads of the country will be in the way of encouraging the use of wide tires, for one narrow-tired wagon will do more damage than a dozen with wide tires if the roads are at all soft. No one disputes the philosophy of wide tires, and no one seems to have any good reason to offer why they should not be used. Our farmers simply follow precedent, and go on using narrow tires because their fathers did before them. Lumbermen and freighters use wide tires almost universally, and save money by it.—Baltimore American, December 10, 1894.

The committee of the board of supervisors would also recommend the use of wide tires on heavy wagons. In wide tires we have a roadmaker instead of a road breaker. We believe the matter should be brought before the legislature this winter and an act passed making it compulsory throughout the State for all heavy wagons to use wide tires, and when the change is made we believe the State should pay a bounty.

Under the act passed in 1894 boards of supervisors are empowered to enact county laws in relation to wide tires being used in a county.

Your committee would not recommend the passage of a county law. We think the law regulating the width of tires on heavy wagons should be universal throughout the State.—Rochester, N. Y., Post Express, December 18, 1894.

Davenport, Iowa, has adopted a wide-tire ordinance providing that any teamster who hauls a load heavier than a specified weight shall be fined. A Davenport man,

in speaking of this law, says: "How are you going to tell whether a teamster has an illegal load on a narrow-tire wagon or not? You can't arrest him on the supposition that he has, for if he should be within the limits he would make it hot for you on the charge of false imprisonment. Neither can you compel that man to go and get his load weighed. There is one way to get around this difficulty: Levy a tax of $5 on every wagon that is equipped with wide tires, 3 or 4 inches, say, and a tax of $20 a year on all that have narrow tires, and arrest and fine everyone who does not pay his tax within a reasonable time."—Farm Implement News.

WIDTH OF TIRES PRESCRIBED IN VARIOUS FOREIGN COUNTRIES.

[Consular report.]

AUSTRIA.

All wagons built for a load of more than 2¼ tons must have wheels with rims at least 4⅓ inches in width (Styria and Carinthia), and if built for more than 4½ tons (in Styria) or more than 3½ tons (in Carinthia), the rims of the wheels must be at least 6¼ inches broad. In lower Austria a width of wheel rim of 4½ inches is required for loaded wagons drawn by two or three horses, and in Bohemia the same regulation is in force.

FRANCE.

Every freighting and market cart here is a roadmaker. Its tires are from 3 to 10 inches in width, usually from 4 to 6. With the few 4-wheeled freight vehicles used the tires are rarely less than 6 inches in width, and the rear axle is about 14 inches longer than the fore, so that the rear or hind wheels run in a line about an inch outside of the level rolled by the fore-wheel.

GERMANY.

The act of April 16, 1840, prescribes that wagons for heavy loads, such as coal, brick, earth, and stone, must have a width of tire at least 4 inches. The same act provides that all vehicles must have a flat and not rounded surface of the tire. All light vehicles must have a width of tire of at least 2½ inches.

SWITZERLAND.

Wagons must be provided with wheels having tires of a width proportional to the largest loads admissible. Two or more horse wagons shall have a width of tire not less than 1 inch for each draft animal. Vehicles for transportation of heavy objects which can not be taken apart must have a tire not less than 6 inches wide.

CANADA.

In Ontario the department of agriculture advises that with wagons without springs, the tire should never be less than 2½ inches in width for a load of from 500 to 1,000 pounds on each wheel. For loads of from 2,000 to 3,000 pounds to the wheel each tire should have a diameter on the face not less than 6 inches. This recommendation will be adopted in Ontario this winter.